

Amendments to the claims:

Claims 1-28. (Cancelled)

Claim 29. (Currently amended) A method for selecting ~~a safe and/or an~~ efficacious therapy for a subject suffering from a schizophrenia, said method comprising the steps of:

- (a) analyzing the MTHFR nucleic acid in a sample obtained from said subject;
- (b) determining the presence of a heterozygous C/T mutation at position 677 that decreases MTHFR activity or reduces MTHFR thermal stability of MTHFR in said subject, wherein the presence of said mutation is indicative of the safety or efficacy of a therapy; and
- (c) selecting ~~a safe or an~~ efficacious neuroleptic therapy for said subject.

Claim 30 and 31. (Cancelled)

Claim 32. (Currently amended) The method of claim 29, wherein said nucleic acid with said mutation at position 677 is determined to further comprise ~~comprises a~~ an additional mutation selected from the group consisting of: G/A mutation at position 167, a G/A mutation at position 482, a C/T mutation at position 559, a C/T mutation at position 692, a C/T mutation at position 764, a G/A mutation at position 792+1, a C/T mutation at

position 985, a C/T mutation at position 1015, a C/T mutation at position 1081, an A/C mutation at position 1298, or and a T/C mutation at position 1317, wherein said additional mutation decreases MTHFR activity or reduces MTHFR thermal stability.

Claim 33. (Previously presented) The method of claim 32, wherein said nucleic acid with said mutation at position 677 comprises an A/C mutation at position 1298.

Claim 34. (Currently amended) The method of claim 29, wherein said nucleic acid subject is determined to comprise at least two MTHFR mutations at a position other than 677 that further decrease MTHFR activity or further reduce MTHFR thermal stability.

Claim 35. (Previously presented) The method of claim 34, wherein said mutations at a position other than 677 comprise at least one of a G/A mutation at position 167, a G/A mutation at position 482, a C/T mutation at position 559, a C/T mutation at position 692, a C/T mutation at position 764, a G/A mutation at position 792+1, a C/T mutation at position 985, a C/T mutation at position 1015, a C/T mutation at position 1081, an A/C mutation at position 1298, or a T/C mutation at position 1317.

Claim 36. (Previously presented) The method of claim 35, wherein said mutations at a position other than 677 comprise an A/C mutation at position 1298.

Claims 37-44. (Cancelled)

Claim 45. (Currently amended) A method for preventing, delaying, or treating a schizophrenia in a subject, said method comprising the steps of:

- (a) analyzing the MTHFR nucleic acid in a sample obtained from said subject;
- (b) determining the presence of a heterozygous C/T mutation at position 677 that decreases MTHFR activity or reduces MTHFR thermal stability of MTHFR in said subject, wherein the presence of said mutation is predictive of the responsiveness of said schizophrenia to safety or efficacy of at least one anti-psychotic a neuroleptic therapy;
- (c) determining a preferred therapy for said subject, wherein said preferred therapy is efficacious safe, and/or has reduced toxicity compared to another therapy for schizophrenia; and
- (c)-(d) administering said preferred neuroleptic therapy to said subject.

Claims 46 and 47. (Cancelled)

Claim 48. (Currently amended) The method of claim 45, wherein said nucleic acid with said mutation at position 677 further comprises a G/A mutation at position 167, a G/A mutation at position 482, a C/T mutation at position 559, a C/T mutation at position 692, a C/T mutation at position 764, a G/A mutation at position 792+1, a C/T mutation at position 985, a C/T mutation at position 1015, a C/T mutation at position 1081, an A/C mutation at position 1298, or a T/C mutation at position 1317, wherein said additional mutation decreases MTHFR activity or reduces MTHFR thermal stability.

Claim 49. (Previously presented) The method of claim 48, wherein said nucleic acid with said mutation at position 677 comprises an A/C mutation at position 1298.

Claim 50. (Currently amended) The method of claim 45, wherein said nucleic acid subject is determined to comprise at least two mutations at a position other than 677 that further decrease MTHFR activity or further reduce MTHFR thermal stability.

Claim 51. (Previously presented) The method of claim 50, wherein said mutations at a position other than 677 comprise at least one of a G/A mutation at position 167, a G/A mutation at position 482, a C/T mutation at position 559, a C/T mutation at position 692, a C/T mutation at position 764, a G/A mutation at position 792+1, a C/T mutation at

position 985, a C/T mutation at position 1015, a C/T mutation at position 1081, an A/C mutation at position 1298, or a T/C mutation at position 1317.

Claim 52. (Previously presented) The method of claim 51, wherein said mutations at a position other than 677 comprise an A/C mutation at position 1298.

Claim 53. (Currently amended) The method of claim 29, further comprising the step of determining the presence of at least one MTHFR mutation at a position other than 677 prior to step (c) wherein said mutation decreases MTHFR activity or reduces MTHFR thermal stability.

Claim 54. (Cancelled) .

Claim 55. (Currently amended) The method of claim 45, further comprising determining the presence of at least one MTHFR mutation at a position other than 677 prior to step (c), wherein said additional mutation decreases MTHFR activity or reduces MTHFR thermal stability.

Claim 56. (New) The method of claim 29, wherein said step (c) further comprises selecting a folic acid therapy.

Claim 57. (New) The method of claim 45, wherein said step (c) further comprises administering a folic acid therapy.

Claim 58. (New) A method for preventing or delaying a schizophrenia in a subject, said method comprising the steps of:

- (a) analyzing the MTHFR nucleic acid in a sample obtained from said subject;
- (b) determining the presence of a heterozygous C/T mutation at position 677 that decreases MTHFR activity or reduces MTHFR thermal stability of MTHFR in said subject, wherein the presence of said mutation is predictive of the responsiveness of said schizophrenia to folic acid therapy;
- (c) administering a folic acid therapy to said subject.

Claim 59. (New) The method of claim 58, wherein said nucleic acid with said mutation at position 677 further comprises a G/A mutation at position 167, a G/A mutation at position 482, a C/T mutation at position 559, a C/T mutation at position 692, a C/T mutation at position 764, a G/A mutation at position 792+1, a C/T mutation at position 985, a C/T mutation at position 1015, a C/T mutation at position 1081, an A/C mutation at position 1298, or a T/C mutation at position 1317, wherein said additional mutation decreases MTHFR activity or reduces MTHFR thermal stability

Claim 60. (New) The method of claim 59, wherein said nucleic acid with said mutation at position 677 comprises an A/C mutation at position 1298.

Claim 61. (New) The method of claim 58, wherein said subject is determined to comprise at least two mutations at a position other than 677 that further decrease MTHFR activity or further reduce MTHFR thermal stability.

Claim 62. (New) The method of claim 61, wherein said mutations at a position other than 677 comprise at least one of a G/A mutation at position 167, a G/A mutation at position 482, a C/T mutation at position 559, a C/T mutation at position 692, a C/T mutation at position 764, a G/A mutation at position 792+1, a C/T mutation at position 985, a C/T mutation at position 1015, a C/T mutation at position 1081, an A/C mutation at position 1298, or a T/C mutation at position 1317.

Claim 64. (New) The method of claim 63, wherein said mutations at a position other than 677 comprise an A/C mutation at position 1298.